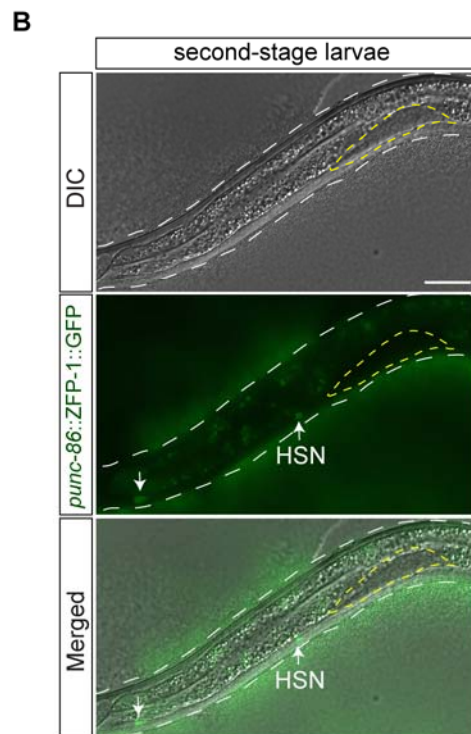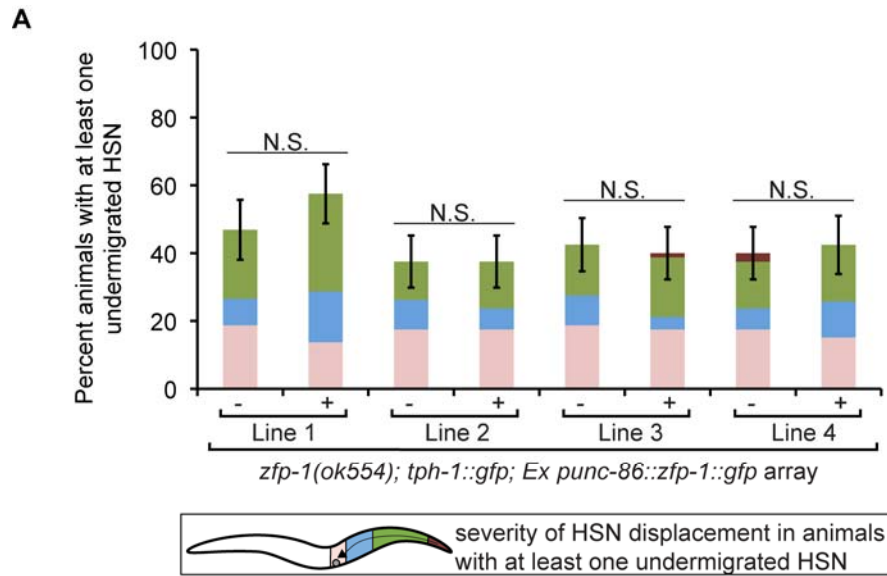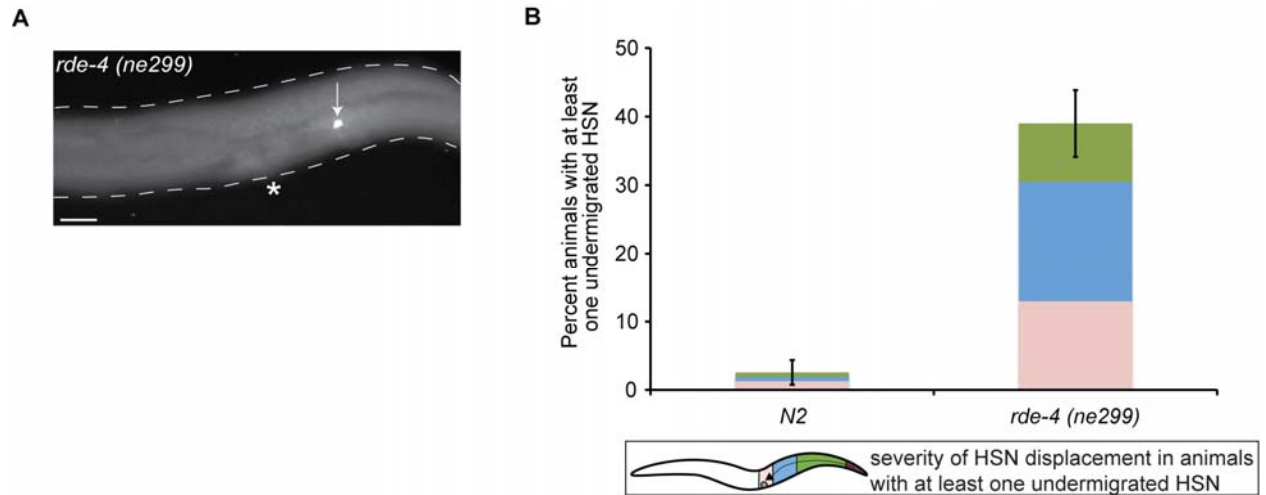**Figure S1** HSN migration defects in *zfp-1(ok554)* determined by anti-serotonin staining. (A) Epifluorescent images of the HSN stained with anti-serotonin in wild type (A) and *zfp-1(ok554)* adult animals (B). Asterisks indicate the vulva and the arrowhead denotes the position of a properly migrated HSN. The arrow in (B) indicates a HSN that has failed to migrate the full distance from its birthplace in the tail of the *zfp-1(ok554)* mutant animal. Note that undermigrated HSNs still differentiate, as they express the neurotransmitter serotonin, a late step in HSN development. Images are oriented with the posterior of the animal to the right. Scale bars: 20 μm. (C) Quantification of the percentage of animals with an undermigrated HSN from two pooled independent experiments in wild type (n=78) versus *zfp-1(ok554)* (n=72) animals. Worm schematic legend: Stacked bars represent the proportion of HSNs at different positions along the A-P body axis <u>within</u> <u>only</u> those animals containing at least one undermigrated HSN. Thus, since there are two HSNs within each animal and not every HSN is affected, one colored region (light pink) represents the wild type HSN that remains unaffected in animals containing a second undermigrated HSN, which is represented by either the reddish/purple, green or blue region. Error bars represent standard error of the proportion (SEP).

A

B

Figure S2 ZFP-1 may function nonautonomously to promote HSN migration. (A) Expression of ZFP-1::GFP in the HSN does not rescue the HSN undermigration defect of *zfp-1(ok554)* mutants. The *zfp-1(ok554)* mutants that had the transgenic array (+) or their siblings that had lost the array (-) were scored. Number of animals scored per line are: Line 1: (-) n=32 and (+) n=40; Line 2: (-) n=40 and (+) n=40; Line 3: (-) n=40 and (+) n=40; Line 4: (-) n=40 and (+) n=33. HSNs were visualized with a *tph-1::gfp* reporter. See Figure S1 for detailed description of worm schematic legend. The *z*-test was used to determine significance. Error bars represent SEP. (B) ZFP-1::GFP driven by the *unc-86* promoter is expressed in a subset of neurons, including the HSN, in *zfp-1(ok554)*. The dotted yellow line represents the developing gonad. The HSN is indicated by an arrow and a second arrow in the tail illustrates a tail neuron, which also expresses ZFP-1::GFP.

Figure S3 HSN migration defects in *rde-4(ne299)* determined by anti-serotonin staining. (A) Epifluorescent image of the HSN stained with anti-serotonin in *rde-4(ne299)* animals (B). The asterisk indicates the vulva and the arrow indicates a HSN that has failed to migrate the full distance from its birthplace in the tail to flank the vulva. Note that undermigrated HSNs still differentiate, as they express the neurotransmitter serotonin, a late step in HSN development. Image is oriented with the posterior of the animal to the right. Scale bars: 20 μm. (B) Quantification of the percentage of animals with an undermigrated HSN from two pooled independent experiments in wild type (n=78) versus *rde-4(ne299)* (n=100) animals. See Figure S1 for detailed description of worm schematic legend. Error bars represent SEP.